MIL-S-12165F
1 August 1979
SUPERSEDING
MIL-S-12165E
1 November 1974

MILITARY SPECIFICATION

STRAINERS, SUCTION, FIREHOSE;

AND STRAINERS, SUCTION, HOSE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers firehose and water hose strainers to be attached to the intake end of a suction hose.

1.2 Classification. Strainers covered by this specification shall be designated in the following form (see 6.2 (b) and 6.3):

M12165 – XX

Military Specification Code Number
Type and Size Code Number (see 1.2.1)

FSC 4730
4210

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Mobility Equipment Research and Development Command, ATTN: DRDME-DS, Fort Belvoir, VA 22060 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

1.2.1 Type and size. The type and size of the strainer (see 3.5 and 3.6) are identified by a two-digit number (see Table I).

TABLE I. Code number to type and size.

Strainer, size (inches, nominal)	Type I (firehose, strainer)	Type II (water hose strainer)
1	-	09
1-1/4	-	10
1-1/2	01	11
2	02	12
2-1/2	03	-
3	04	-
4	05	-
4-1/2	06	-
5	07	-
6	08	-

2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

QQ-A-601 - Aluminum Alloy Sand Castings.
QQ-C-390 - Copper Alloy Castings (Including Cast Bar).
QQ-S-766 - Steel Plates, Sheets, and Strip--Corrosion Resisting.
GGG-W-665 - Wrench, Spanner.

MILITARY

MIL-P-775 - Packaging of Hose, Hose Assemblies; Rubber, Plastic, Fabric, or Metal (Including Tubing); and Fittings, Nozzles, and Strainers.

MIL-R-14328	- Rubber Sheet: Synthetic, Medium Soft, General-Purpose Gasket Material (for Extreme Climatic Conditions).

STANDARDS

FEDERAL

FED-STD-H28/10	- Screw-Thread Standards For Federal Services; Section 10, American National Hose Coupling and Fire-Hose Coupling Threads.
FED. TEST METHOD STD. No. 151	- Metals; Test Methods.

MILITARY

MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-130	- Identification Marking of US Military Property.
MIL-STD-1188	- Commercial Packaging of Supplies and Equipment.

(Copies of specifications and standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

B 46.1 - Surface Texture.

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

E 8 - Tension Testing of Metallic Materials.
E 10 - Brinell Hardness of Metallic Materials.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Description. The suction strainers shall be cylindrical. When components are fabricated from sheet metal, seams shall be welded or brazed. Seamless tubing may be used. The thickness of sheet metal or wall thickness of tubing shall be not less than 0.032 inch. When the body of the strainer is of cast construction, the thickness of the metal shall be not less than 0.063 inch or 2.5 percent of the outside diameter of the strainer, whichever is the greater. When the strainer is fabricated from the cast and sheet or tube components, the components shall be joined by riveting, brazing, or welding.

3.2 Materials. Cast aluminum, cast brass, and corrosion resisting steel shall conform to the requirements shown in Table II; or cast brass shall conform to the chemical composition of Table III and to the mechanical properties of Table IV (see 6.4).

TABLE II. Materials.

Material	Specification
Aluminum castings	QQ-A-601, Alloy 356.0, Temper T6, or Alloy D712.0, Temper T5.
Brass castings	QQ-C-390, Copper Alloy No. 857, 854, 852, or 836, Type I.
Corrosion resisting steel	QQ-S-766, class optional.

TABLE III. Chemical composition for cast brass.

Element	Minimum percent	Maximum percent
Copper	82.00	84.00
Tin	2.50	3.50
Lead	2.50	3.50
Zinc	9.00	11.00
Phosphorus	-	0.03
Antimony	-	0.25
Nickel	0.25	0.50
Other elements, other than copper, zinc, lead, and nickel 1/	-	0.50

1/Includes iron, maximum percent 0.35.

TABLE IV. Mechanical requirements for cast brass.

Properties	Minimum	Maximum
Tensile strength, pounds per square inch (psi)	30,000	-
Elongation in 2 inches (percent)	20	-
Reduction in area (percent)	17	32
Brinell hardness (500 kilograms (kg) for 30 seconds)	50	65

3.3 Finish. Strainer surfaces shall not be painted or dyed. Non-mating surfaces, when fabricated from cast material, shall have a sandcast finish. When fabricated from sheet or tube material, the finish shall have a roughness value of RMS 500 in accordance with ANSI B 46.1. Mating and gasket surfaces shall have a roughness value of RMS 125 in accordance with ANSI B 46.1.

3.4 Identification marking. The strainers shall be identified in accordance with MIL-STD-130.

3.5 Type I, firehose. The strainers shall be all aluminum, all brass, or all corrosion resisting steel. Firehose strainers shall have holes not less than 0.062 inch and not more than 0.437 inch in diameter to provide an effective open area of not less than 1.4 times the inside cross sectional area of the hose with which the strainer will be used. The strainer shall be equipped with rocker-type lugs for use with spanner wrenches conforming to GGG-W-665. Each strainer shall be equipped with an eye or lug for attaching a 1.125 inch nominal circumference rope. The strainers shall conform to the dimensions shown in Table V. Strainer throats shall be rounded to reduce friction and turbulence.

TABLE V. Dimensions, firehose strainers.

Nominal size	Length (minimum)	Inside diameter (minimum)
inches	inches	inches
1-1/2	6.00	1.50
2	7.00	2.00
2-1/2	8.00	2.50
3	9.00	3.00
4	10.00	4.00
4-1/2	10.00	4.50
5	12.00	5.00
6	12.00	6.00

3.5.1 Washers. Each strainer shall be furnished with a washer conforming to the applicable dimensions shown in Table VI. Washers shall be fabricated from synthetic rubber conforming to MIL-R-14328.

TABLE VI. Washer dimensions.

Nominal size	Inside diameter +0.031, - 0	Outside diameter +0, -0.031	Nominal thickness
inches	inches	inches	inches
1-1/2	1.562	2.062	0.125
2	2.031	2.562	0.125
2-1/2	2.562	3.187	0.187
3	3.062	3.750	0.250
4	4.062	5.125	0.250
4-1/2	4.562	5.875	0.250
5	5.062	6.375	0.250
6	6.062	7.125	0.250

3.5.2 Threads. Threads shall be internal, American National Firehose Coupling threads (NH) conforming to FED-STD-H28/10.

3.6 Type II, water hose. The strainers shall be all brass. The bottom plate and the top connector shall be fabricated from brass. The top connector shall be provided with a hexagonal or octagonal wrenching feature. The body shall be of seamless brass tubing reinforced with longitudinal flat ridges and provided with inside-cut V-slots. The exterior width of the V-slots shall be not more than 0.040 inch and not less than 0.030 inch. The effective open area shall be not less than 1.5 times the inside cross sectional area of the hose with which the strainer will be used. Strainers shall conform to the dimensions shown in Table VII.

TABLE VII. Dimensions, water hose strainers.

Nominal size	Length of body (minimum)	Overall length of strainer (maximum)	Outside diameter of tubing (body) (minimum)
inches	inches	inches	inches
1	4.00	5.50	1.375
1-1/4	4.50	6.00	1.750
1-1/2	4.50	6.00	2.000
2	5.00	7.00	2.500

3.6.1 Threads. Threads shall be internal, (NPSH) American National Hose Coupling threads conforming to FED-STD-H28/10.

3.7 Workmanship. All cast and fabricated components of the strainers including welded parts shall be clean and free from sand, dirt, fins, sprues, scale, flux, and other harmful extraneous material. External surfaces shall be free from burrs, sharp edges, and corners. The forming of material shall be done by methods that will not cause damage to the material.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary so assure supplies and services conform to prescribed requirements.

4.1.1 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications and standards, as applicable.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

(a) Quality conformance inspection (see 4.3).
(b) Inspection of packaging (see 4.5).

4.3 Quality conformance inspection.

4.3.1 Lot. For the purposes of inspection, a lot shall consist of all strainers of the same type and size offered for delivery at one time.

4.3.2 Sampling. Sampling for examination and test shall be in accordance with MIL-STD-105.

4.3.3 Examination. Samples selected in accordance with 4.3.2 shall be examined as specified in 4.4.1. AQL shall be 1.0 percent defective for major defects and 4.0 percent defective for minor defects.

4.3.4 Tests. Samples selected in accordance with 4.3.2, which have components that are brass castings that do not conform to Table I, shall be subjected to the test specified in 4.4.2. AQL shall be 1.5 percent defective.

4.4 Inspection procedure.

4.4.1 Examination. The strainer shall be examined as specified herein for the following defects:

Major

101. Material not as specified.
102. Components not as specified.
103. Dimensions not as specified.
104. Effective open area of strainers less than that specified.
105. Strainers not equipped with rocker lugs as specified.
106. Strainers not equipped with lug or eye for rope attachment.
107. Strainer throats (Type I, firehose) not rounded.

108. Washers (Type I, firehose) not as specified or missing.
109. Threads not as specified or damaged.
110. Top connector not provided with wrenching feature (Type II, water hose).
111. Workmanship not as specified.

Minor

201. Defective seams.
202. Finish not as specified.
203. Identification marking missing, incomplete, or illegible.
204. Sharp, ragged, or rough edges.

4.4.2 Test. Brass castings of Table III and IV material shall be tested in accordance with FED. TEST METHOD STD. 151, Method 111.2 or 112.2, ASTM E 8 and ASTM E 10. Failure to conform to the chemical and mechanical requirements shown in Tables III and IV shall constitute failure of these tests.

4.5 Inspection of packaging. Military packaging shall be examined for conformance to MIL-P-775. Commercial packaging shall be examined for conformance to MIL-STD-1188.

5. PACKAGING

5.1 Preservation, packing, and marking. Preservation, packing, and marking shall be Level A, Level B, or Commercial as specified (see 6.2).

5.1.1 Level A and Level B. Level A preservation and marking, and Level A and Level B packing and marking shall be in accordance with MIL-P-775.

5.1.2 Commercial. Commercial preservation, packing, and marking shall be in accordance with MIL-STD-1188.

6. NOTES

6.1 Intended use. The strainers are intended to be attached to the intake end of a hose line to prevent foreign particles from passing through the line when water is pumped from lakes, rivers, streams, or similar water sources.

Except as otherwise specified in the contract or p

6.2 Ordering data. Procurement documents should specify the following:

(a) Title, number, and date of this specification.
(b) Military specification part number required (see 1.2 and 6.3).
(c) Degree of preservation and degree of packing required (see 5.1).

6.3 Definitive military specification part number. The military specification part number is a definitive part number which corresponds to the types and sizes of strainers covered by this specification. The military specification code number (M12165 for MIL-S-12165) with a dash after it and the type and size code number are combined to form the military specification part number (see 1.2).

6.4 Recycled material. It is encouraged that recycled material be used, when practical, as long as it meets the requirements of this specification (see 3.2).

Custodians:
Army - ME
Navy - YD
Air Force - 99

Review activities:
Army - EA
DLA - CS

Preparing activity:
Army - ME

Project 4730-0944

TANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

INSTRUCTIONS: The purpose of this form is to solicit beneficial comments which will help achieve procurement of suitable products at reasonable cost and minimum delay, or will otherwise enhance use of the document. DoD contractors, government activities, or manufacturers/ vendors who are prospective suppliers of the product are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity.

DOCUMENT IDENTIFIER AND TITLE MIL-S-12165F Strainers, Suction, Firehose; and Strainers, Suction, Hose

NAME OF ORGANIZATION AND ADDRESS	CONTRACT NUMBER
	MATERIAL PROCURED UNDER A ☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?
   A. GIVE PARAGRAPH NUMBER AND WORDING.

   B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3. IS THE DOCUMENT RESTRICTIVE?
   ☐ YES ☐ NO *(If "Yes", in what way?)*

4. REMARKS

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